

ELECTION

The Office Action at sections 11-14 restricts the claims between:

Group I, claims 1-6 and 13-15, drawn to silica particles and their use; and  
Group II, claims 7(sic), 9 and 10-12, drawn to a method of making and using  
silica particles.

Applicants hereby elect, with traverse, to prosecute the invention of Group I, Claims  
1-6 and 13-15, drawn to silica particles and their use.

Applicants respectfully traverse the Restriction Requirement because the Office has  
not shown that a serious burden exists in searching all of the claims.

If the search and examination of all the claims in an application can be  
made without serious burden, the examiner must examine them on the merits,  
even though they include claims to independent or distinct inventions. MPEP  
§ 803.

Applicants submit that a search of all of the claims would not constitute a serious  
burden on the Office. Thus, the Restriction Requirement is improper and should be  
withdrawn.

### SUPPORT FOR THE AMENDMENTS

This Amendment amends Claim 7; and adds new Claim 16. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 16 is found in the specification at least at [0034] ("maximum value of  $\Delta V_p/\Delta \log R_p$  ... especially preferred 2500 mm<sup>3</sup>/nm·g or more"). No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-7 and 9-16 will be pending in this application. Claim 1 is independent.

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

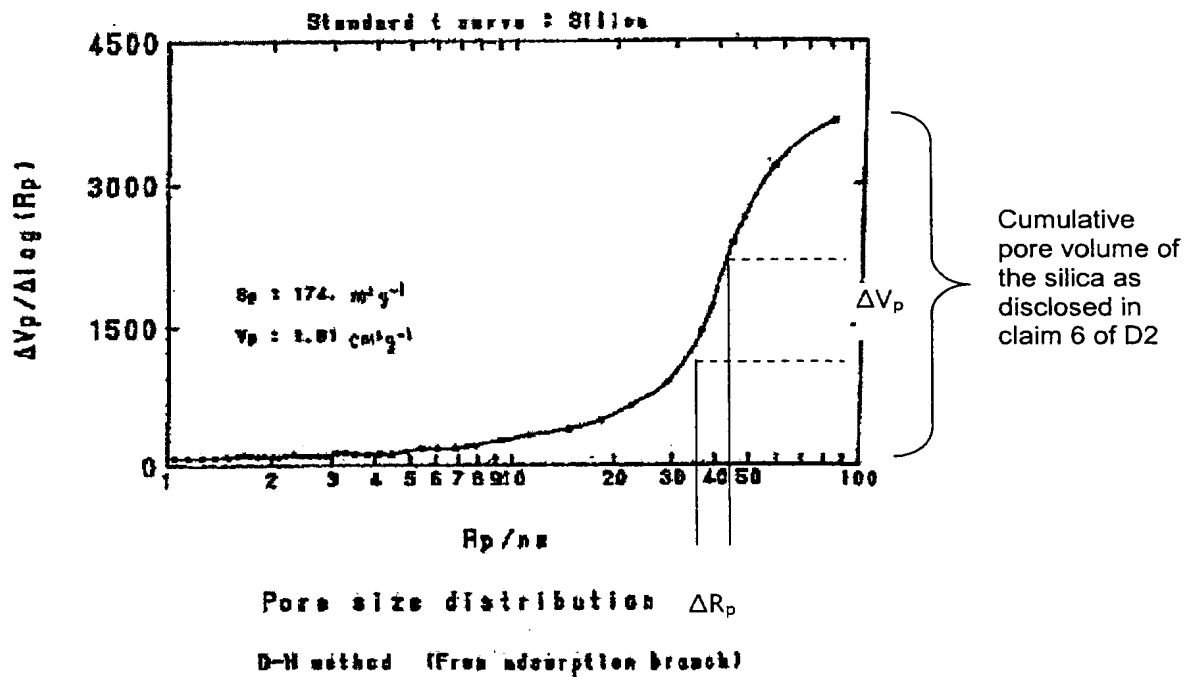
The present invention provides amorphous silica particles having high oil absorbance capabilities. Specification at [0001]. The present inventors have discovered that amorphous silica particles having an oil absorption of 400ml/100g or more can be made by making amorphous silica particles having an oil absorption of 340ml/100g or more and baking these silica particles at 200 to 990C. Specification at [0008]. For the baked amorphous silica particles, the maximum value of  $\Delta V_p/\Delta \log R_p$  is 250 mm<sup>3</sup>/nm·g or more in the pore distribution curve obtained by the nitrogen adsorption isotherm method, and pore peak radius when the  $\Delta V_p/\Delta \log R_p$  value is maximum is 15 to 100 nm.

Claims 1-7 and 9-15 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 6,413,373 ("Matsuda"). Matsuda discloses a process for producing silica particles. Matsuda at title.

The Office Action argues that Claim 6 of Matsuda discloses that the change of volume from 1 cc/g to 2 cc/g would be equivalent for  $\Delta V_p$ . This is not correct. Claim 6 of

Matsuda, however, discloses silica that have a pore volume of 1 cc/g for pores with a diameter of 200 to 2000 Å and also other silica having a pore volume of 2 cc/g for pores with a diameter of 200 to 2000 Å plus all kinds of silica in between these two borderlines. In each case, however, Claim 6 of Matsuda relates to different silica, i. e. one with 1 cc/g and one with 2 cc/g.

The  $\Delta V_p$  value of the present invention represents a parameter of one individual silica. The drawing below, derived from Figure 1, is provided to help to understand the definition of this parameter.



One individual silica usually has different pores with different sizes. Nitrogen is absorbed in different amounts by different pores with different sizes.  $\Delta V_p/\Delta R_p$  respectively its logarithmic value represents the change in the amount of the absorbed nitrogen in relation to a given change of pore radius (see  $\Delta R_p$  in the figure above) for one silica. This tells how many pores having radius 40 nm exist and how many pores having a radius of 50 nm exist in one and the same silica.

The Office Action uses a  $\Delta V_p$  value of two different silica, one having a cumulative pore volume (see indication in the figure above) of 1 cc/g and one having a total pore volume of 2 cc/g. What the Office Action therefore calculated is a  $\Delta V_p$  between two different silicas which is not the  $\Delta V_p$  claimed in the present invention. Therefore the Office Action compared two absolutely different parameters with each other. This is not correct.

Thus, Matsuda fails to suggest the independent Claim 1 limitations that "the maximum value of  $\Delta V_p/\Delta \log R_p$  (where  $V_p$  is the pore volume [ $\text{mm}^3/\text{g}$ ] and  $R_p$  is the pore radius [nm]) is  $250 \text{ mm}^3/\text{nm} \cdot \text{g}$  or more in the pore distribution curve obtained by the nitrogen adsorption isotherm method, and pore peak radius when the  $\Delta V_p/\Delta \log R_p$  value is maximum is 15 to 100 nm".

Furthermore, Table 2 in column 14 of Matsuda discloses that the maximum amount of Hg is absorbed by pores having a pore radius  $R_p$  of from 300 to 4000 nm (pore diameter = 6000 to  $8 \times 10^4 \text{ \AA}$ ). Thus – even though  $\Delta V_p$  is not explicitly disclosed in Matsuda – there is strong evidence that  $R_p$  for the maximum of  $\Delta V_p/\log(\Delta R_p)$  of the silica of Matsuda is in the range of 300 to 4000 nm. This is clearly outside of independent Claim 1's range of "15 nm to 100 nm". This interpretation is supported by the explanations in column 4, lines 1-13 of Matsuda. Thus, there is no maximum in the range of  $R_p = 10$  to 100 nm for the silica of Matsuda. Instead, the maximum is clearly thought for pores having higher pore radiuses.

Because Matsuda fails to suggest all the limitations of independent Claim 1, the rejection over Matsuda should be withdrawn.

New Claim 16 is further patentably distinguishable over Matsuda, because Matsuda fails to suggest the Claim 16 limitation that "the maximum value of  $\Delta V_p/\Delta \log R_p$  ... is **2500**  $\text{mm}^3/\text{nm}\cdot\text{g}$  or more ...".

Claims 7 and 9-15 are rejected under 35 U.S.C. § 102(b) over JP 06-040714 ("JP-714").

Claims 7 and 9-15 are rejected under 35 U.S.C. § 103(a) over WO 01/17901 ("WO-901").

Claims 7 and 9-15 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,107,236 ("Pecoraro").

Claim 7 is amended to depend from independent Claim 1, which is not rejected over JP-714, WO-901 or Pecoraro. Thus, the rejections over each of JP-714, WO-901 and Pecoraro should be withdrawn.

Claims 1-7 and 9-15 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action asserts

The pore peak radius is now recited to be at least 15 nm. At that value, the **corresponding** maximum value of  $\Delta V_p/\Delta \log R_p$  is at least 1000  $\text{mm}^3/\text{nm}\cdot\text{g}$ , not 250  $\text{mm}^3/\text{nm}\cdot\text{g}$  or 500  $\text{mm}^3/\text{nm}\cdot\text{g}$  as recited in claims 1 and 2. See the instant specification, paragraphs [0043]-[0044] and also figures 1 and 2. Thus, the maximum value of  $\Delta V_p/\Delta \log R_p$  of 250 or 500  $\text{mm}^3/\text{nm}\cdot\text{g}$  as presently claimed does not **correspond** to the presently amended peak pore radius. The instant specification does not provide teaching or support for a value of  $\Delta V_p/\Delta \log R_p$  being less than 1000  $\text{mm}^3/\text{nm}\cdot\text{g}$  when the peak pore radius is at least 15 nm. Office Action at page 2, section 2, lines 6-13 (emphasis added).

On the contrary, the specification does not disclose a fixed correspondence between the maximum value of  $\Delta V_p/\Delta \log R_p$  and the pore peak value when the  $\Delta V_p/\Delta \log R_p$  value is a maximum. Instead, the specification discloses:

[0034] In the pore distribution curve obtained by the nitrogen adsorption isotherm method, the **maximum value of  $\Delta V_p/\Delta \log R_p$**  (where  $V_p$  is the pore volume [ $\text{mm}^3/\text{g}$ ] and  $R_p$  is the pore radius [ $\text{nm}$ ]) is  **$250 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more**, preferably  $500 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more, more preferably  $1000 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more, and even more preferably  $1500 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more, most preferably  $2000 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more, especially preferred  **$2500 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more**. When the maximum value of  $\Delta V_p/\Delta \log R_p$  (where  $V_p$  is the pore volume [ $\text{mm}^3/\text{g}$ ] and  $R_p$  is the pore radius [ $\text{nm}$ ]) is less than  $250 \text{ mm}^3/\text{nm}\cdot\text{g}$ , there is an remarkably high open structure so that the effect of increasing the oil absorption by baking is low.

[0035] Moreover, the **pore peak radius** is  $3 \text{ nm}$  or more, preferably  $10 \text{ nm}$  or more, more preferably  **$15 \text{ nm}$  or more**, and even more preferably  $20 \text{ nm}$  or more, most preferably  $25 \text{ nm}$  or more, especially preferred  $30 \text{ nm}$  or more. When the pore peak radius is less than  $3 \text{ nm}$ , the particle size is small, so that the pore may disappear during baking. Further, the **maximum** of the pore peak radius is  **$100 \text{ nm}$**  due to the measurement. Specification at [0034]-[0035].

Because the specification clearly allows [see M.P.E.P. § 2163.02] persons of ordinary skill in the art to recognize that Applicants invented the amorphous silica particles of independent Claim 1 "wherein ... the maximum value of  $\Delta V_p/\Delta \log R_p$  (where  $V_p$  is the pore volume [ $\text{mm}^3/\text{g}$ ] and  $R_p$  is the pore radius [ $\text{nm}$ ]) is  **$250 \text{ mm}^3/\text{nm}\cdot\text{g}$  or more** in the pore distribution curve obtained by the nitrogen adsorption isotherm method, and **pore peak radius** when the  $\Delta V_p/\Delta \log R_p$  value is maximum is  **$15$  to  $100 \text{ nm}$** ", the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

Claims 1-7 and 9-15 are provisionally rejected on the ground of non-statutory obviousness-type double patenting over Claims 1-8 of co-pending Application No. 10/566,373. To obviate the rejection, a Terminal Disclaimer over Application No. 10/566,373 is attached.

Pursuant to M.P.E.P. § 821.04(b), after independent product Claim 1 is allowed, Applicants respectfully request rejoinder, examination and allowance of non-elected process Claims 7, 9 and 10-12, which include all of the limitations of independent product Claim 1.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

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Respectfully submitted,

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Attached:

Terminal Disclaimer over Application No. 10/566,373

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